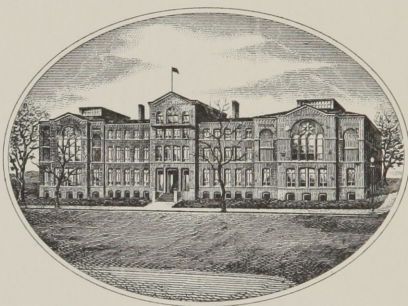


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J. Dyckman

AN
INAUGURAL DISSERTATION
ON THE
FUNCTIONS OF THE UTERUS.

Russam (P. O.)
INAUGURAL DISSERTATION

ON THE

FUNCTIONS OF THE UTERUS.

SUBMITTED

To the public examination of the Trustees and Professors of the College of Physicians and
Surgeons in the University of the State of New-York, SAMUEL BARD, M. D.
President, for the DEGREE OF DOCTOR OF MEDICINE,
on the 6th day of May, 1816.

Dux Femina facti. VIRG.

O, Woman! in our hours of ease,
Uncertain, coy, and hard to please,
And variable as the shade
By the light quivering aspen made;
When pain and anguish wring the brow,
A ministering angel thou!—

WALTER SCOTT.

BY BENJAMIN P. KISSAM,

SURGEON IN THE UNITED STATES NAVY; LICENTIATE IN MEDICINE AND SURGERY OF
THE MEDICAL SOCIETY OF NEW YORK; AND HONORARY MEMBER
OF THE AMERICAN ESCULAPIAN SOCIETY.

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1816.

TO

RICHARD SHARPE KISSAM, M. D.

*One of the Surgeons of the New-York Hospital; Honorary Member of the Royal Medical
Society of Edinburgh, &c. &c.*

WHOSE SKILL AND ABILITIES

AS A PRACTITIONER,

AND WHOSE EXTENSIVE READING AND PROFOUND JUDGMENT

AS A CLASSICAL SCHOLAR,

HAVE ELEVATED HIM TO THE FIRST RANK IN HIS PROFESSION,

THIS DISSERTATION IS DEDICATED,

AS A TESTIMONY OF RESPECT,

BY HIS

GRATEFUL PUPIL

AND

AFFECTIONATE NEPHEW,

THE AUTHOR.

TO

JAMES S. STRINGHAM, M. D.

*Professor of Medical Jurisprudence in the University of New-York ; Honorary Member of
the Royal Medical and Physical Societies of Edinburgh, &c. &c.*

AND TO

VALENTINE MOTT, M. D.

*Professor of the Principles and Practice of Surgery in the College of Physicians and Surgeons,
in the University of the State of New-York ; Corresponding Member of the Medical
Society of London ; President of the Physico-Medical Society of
New-York ; President of the American Æscu-
lapiian Society, &c. &c.*

THIS DISSERTATION IS INSCRIBED,

AS

AN EXPRESSION OF ESTEEM,

BY

THEIR OBLIGED FRIEND,

THE AUTHOR.

A

DISSERTATION

ON THE

FUNCTIONS OF THE UTERUS.

FROM the earliest ages of society to the present day, few subjects have been so freely discussed, and but few less fully comprehended, than the one now under consideration. This has arisen, no doubt, from immemorial custom of employing *Accoucheuses*, or Midwives, who, from a confined education, and a total ignorance of anatomy, were badly qualified to theorise, and far less capable of forming a correct judgment of those opinions already extant.

Time and experience, however, have at length effected what reason could not—the abolition of midwives, and taught the necessity of employing men who, from a thorough knowledge of anatomy and medicine, are better qualified both to judge and to act.

As this is a subject in which is comprised the progress and the welfare of society, I shall feel myself fully recompensed, if I can add a single ray of light to that splendour with which a Hamilton, a Denman, and a Burns, have encircled it, or can dissipate any of those clouds which, in despite of the brilliancy of their genius, still mingle with many of their theories.

It shall be my object, in the following thesis, to give a description of the uterus, and parts concerned in gestation ; of the changes of the uterine system, consequent to impregnation ; and, lastly, of the various theories of Menstruation and Conception.

Of the Uterus, and parts concerned in gestation.

These are constituted of the *Vagina, Uterus, Fallopian Tubes, and Ovaria.*

The duct which leads from the pudendum to the uterus, is termed vagina ; it is somewhat of a triangular, conical form, with its narrowest aperture below, and is generally about two and a half inches in length, and two inches in width ; its size, however, is very variable in the same and different women ; some authors of much experience and great parts having described it as several inches long, and three or four in diameter.

The most distinguishing property of the vagina, is its remarkable elasticity, which is sometimes carried beyond conception, thereby inducing various diseases, and frequently rendering it a subject of medical and chirurgical investigation.

The vagina is connected to the os uteri, though not in so direct a line as to form an uninterrupted continuation of cavity, being reflected over the neck of the uterus, which, by this mode of union, is suspended with protuberant lips in the vagina, and is allowed to change its position, so that, at the time of parturition, no precise line can be drawn distinguishing the one from the other.

The vagina is composed of two coats, the innermost of which is villous, and contracted in transverse plicæ, and is interspersed with many excretory ducts. The outer coat is of a firm membrane, endowed with muscular action, though no fibres are to be distinctly seen in it, and is connected, by cellular substance, to the neighbouring parts; posteriorly and superiorly it is covered by the peritoneum, while its internal coat is continued upwards, and makes the internal membrane of the uterus; the vagina has likewise an anterior connexion with the bladder, and a posterior one with the rectum.

The uterus lies loosely in the middle of the pelvis, and is liable to many variations from time of life, conception, gestation, &c. ; it somewhat resembles a bell pear, and measures, generally, about three inches in length, two in breadth at the fundus, and one at the cervix. Hamilton and Roederer disagree about its convex surface ; the former says it is “convex on its superior part, and, by pressure, a little flattened below ;” while the latter asserts, “*facies uteri anterior planior est, convexior posterius,*” that the anterior surface is flat, and the posterior is convex.

The uterus is nominally divided into three parts, i. e., the fundus, the body, and the cervix ; the superior part is termed the fundus ; the inferior the cervix ; and the intervening part the body. The fundus is nearly an inch thick, the cervix rather more, and this proportion holds good throughout pregnancy, by the enlargement of the veins and lymphatics, there being little or no change in the size of the arteries.

The cavity of the uterus, though very small, corresponds with its external form ; two angles of the cavity are opposed to the entrance of the fallopian tubes, and a third to the neck of the uterus, where it is very small. The internal coat of the uterus, which is a continuation

of the villous coat of the vagina, is beautifully corrugated; but the rugæ disappear as they approach the fundus, which is smooth, and between them are small apertures which discharge a mucus during pregnancy that serves the purpose of closing the os uteri.

The uterus is composed of arteries, veins, lymphatics, nerves, and muscular fibres; though it is with much difficulty these fibres can be traced, as they are of a pale colour:—they have been variously described by different authors; some of whom have asserted, that the uterus was formed chiefly of muscular fibres running in an orbicular, transverse, or reticular order; whilst others have affirmed, that there were no muscular fibres whatever to be found in any part of it, though they may be plainly demonstrated in the latter stage of pregnancy, or even in an unimpregnated state, if the uterus be boiled; they are generally transverse, though they are circular around the entrance of the fallopian tubes and neck of the uterus.

The blood vessels of the uterus are the spermatic and hypogastric arteries and veins, and sometimes small branches from the hæmorrhoidal arteries and external iliacs; the spermatic arteries arise from the anterior part of the aorta, and sometimes from the emul-

gents ; they enter the uterus near the fundus, pass between the duplicatures of the peritoneum, and give off branches to the ovaria and fallopian tubes.

The hypogastric arteries are considerable branches of the internal iliacs ; they pass along the sides of the uterus, and send off some branches to anastomose with the spermatic arteries, while other branches are reflected downwards to supply the vagina.

The uterus is furnished with nerves by the lower mesocolic plexus, and two small ganglia behind the rectum, which, in their course to the uterus, are joined by many small branches from the third and fourth sacral nerves.

The veins of the uterus, which are very large, and take the names of the arteries, have no valves ; the spermatic veins empty themselves into the cava and left emulgent veins.

From every part of the uterus and vagina an infinite number of lymphatics arise, part of which run into the internal iliac plexus, while the remainder go to join the gland near the origin of the spermatic arteries.

The fallopian tubes arise from either side of the fundus of the uterus ; they are about three inches long, and are enclosed by those duplicatures of the peritoneum called the ligamenta lata. The

fallopian tubes are fimbriated at their loose, floating extremities, for the purpose, as it is supposed, of grasping the newly-evolved ovum, and fixing it firmly in its tube, which soon, by *its regular vermiform action towards the uterus*, is relieved of its burden.

Immediately below that point where the fallopian tubes are given off, arise the ligamenta rotunda, composed of lymphatics, nerves, arteries, and veins; these, connected together by cellular membrane, and covered by the peritoneum, pass out through the external rings at the groin, and terminate in the mons veneris.

The ovaria (about the functions of which so many different opinions exist) are suspended in the ligamenta lata below the fallopian tubes; they are two little oval bodies, convex on the anterior and posterior surface, about an inch long, and half an inch thick. “All have agreed that the ovaria prepare whatever the female supplies towards the formation of the fœtus; and this is proved by the operation of spaying, which consists in the extirpation of the ovaria, after which the animal not only loses the power of conceiving, but desire is for ever extinguished.”*

The ovaria, like the uterus and fallopian

* Denman.

tubes, is covered by the peritoneum; in consequence of which, whenever an ovum has been impregnated and carried by the fimbriæ into the fallopian tubes, a rupture of the peritoneum must take place; this soon heals, but always leaves a longitudinal cicatrix, which is so distinct as to enable the observer to determine, by the cicatrices formed, the number of times conception has occurred.

The ovum being carried by the fallopian tubes into the uterus, leaves behind it, in the ovarium, a small yellow spot, called the corpus luteum, which is supposed to be the envelope or calyx from which, being impregnated, it has dropped.

Changes of the Uterus.

When unimpregnated, the uterus is of a flat triangular shape, which, during the first months of pregnancy, is changed to that resembling an oblong pear or powder flask, gradually becoming globular, and extending from the pubis to the ensiform cartilage of the sternum. The moment impregnation takes place, the vessels of the uterus begin to enlarge very rapidly; the veins enlarge much more than the arteries, and are largest on the sides of the uterus: this enlargement of the veins is perceptible, even before the descent of the ovum into the uterus, and to such

an extent that they appear sinuses ; new fibres, at the same time, are added to the uterus, while the blood vessels, instead of opening on the inner surface, elongate themselves into fine vessels, which give to the uterus the appearance of being lined with down.

The increased size of the uterus, and greater action of its blood vessels, consequent to impregnation, take place whether the foetus passes into the uterus or not ; and the additional membrane (the decidua vera) is also present, although the foetus be extra-uterine.

During the first seven or eight weeks of gestation, the uterus, on account of its weight, descends in the pelvis ; but as it increases it elevates itself by pressure on the sides of the pelvis, the brim of which, being a fixed point, serves as well to support as to protect it : this elevation generally takes place in the third month, when the uterus may be felt rising above the pelvis ; its length, from the os tincæ to the fundus, measuring at this period about five inches, one of which belongs to the cervix.

In the fourth month the neck of the uterus begins to extend, and forms a part of the uterine cavity. At this period about one fourth of the cervix is added to the uterus, which now reaches

a little higher, and measures five inches from the fundus to the beginning of the cervix.

In the fifth month, one half the cervix is distended, while the uterus, so much enlarged as to render the belly tense, is to be felt like a ball lying in a middle line between the pubis and navel, measuring six inches from the fundus to the cervix.

In the sixth and seventh months, nearly the whole of the cervix is distended, the uterus reaching to the navel, and measuring about eight inches.

In the eighth month, there is not the smallest trace of the cervix left, the uterus lying half way between the navel and sternum.

In the ninth month, the uterus reaches nearly to the ensiform cartilage, especially in a first pregnancy, when the tightness of the teguments prevents it from hanging so far forwards as it does afterwards. From top to bottom, it now generally measures from ten to twelve inches.

Previous to impregnation, the os uteri (or rather the extremity of the cervix) is always open ; but immediately after conception, it becomes filled and shut up by mucus, though not so closely but a small cavity may always be perceived at the lower undistended portion.

All these changes of the cervix are necessary.

in the first place, to afford room for the lodgment of the child, and, in the second place, for its delivery, which could not be effected independent of them, without the greatest delay, difficulty, and danger. Something of this kind takes place when the os uteri becomes tendinous, which frequently renders delivery impossible, without a division of the cervix.

The shape of the uterus is always somewhat flattened ; its greatest breadth being placed laterally, owing as well to its own fixed form as to the pressure of the parieties of the abdomen ; notwithstanding which, the uterus, until labour, when the uterine fibres contract, undergoes great variation in shape, on account of different positions of the child, and pressure of the neighbouring viscera.

The uterus, in any shape, or at any period, whether gravid or not, never rises directly ; when unimpregnated, its fundus lies obliquely backwards, and when gravid, obliquely forward. This change occurs when the uterus rises from the pelvis, and the degree of obliquity always depends on the number of children which the woman has previously borne, the linea alba yielding more and more during every distention.

This change of position is occasioned by the mesentery, which is a fixed point, binding down the intestines, and behind which the uterus cannot get ; so that, when the uterus rises from the pelvis, it must necessarily lie before the intestines. This fortunate situation prevents much misery, for were it possible that the uterus could get behind the intestines, the circulation through the great blood vessels must have been impeded, and death, in nine cases out of ten, would have been the consequence.

The anterior obliquity of the uterus is, also, of the greatest consequence in labour ; as by this means the axis of the uterus is brought in a direct line with that of the pelvis, which could be done in no other manner. This anterior obliquity, however, (which, in a certain degree, is beneficial,) is supposed to be injurious when carried too far, and to retard labour as effectually as a posterior obliquity would ; for, in this case, the point in opposition would be the sacrum, which must have been equally as injurious as if the uterus had arisen straight up, or been inclined obliquely backwards ; the only difference would have been, that, in the one instance, the pubis, while in the other the sacrum, was the opposing obstacle.

A lateral obliquity of the uterus sometimes produces an incontinence of urine ; but if this happen in the early months of pregnancy, it will cause a retention of it by the pressure made by it on the neck of the bladder ; the first is to be alleviated by a reclining posture, the latter by a catheter.

There is another unpleasant position of the uterus, known by the name of *retroversion* ; this is produced by a diseased connexion of the uterus and bladder, by which, whenever the bladder rises, as it does when it is filled, the uterus attached to the lower part of it must necessarily follow, and the fundus uteri be thrown back by the pressure of the intestines above, or, if the uterus be gravid, by its own augmented weight. In this disease, the uterus and bladder, reciprocally, act injuriously upon each other ; for as the bladder rises, the fundus of the uterus must be thrown back, and as the fundus retroverts, the pressure on the neck of the bladder must increase.

As in some cases this retroversion may prove fatal on account of the retention of urine, it is requisite that every means should be taken to lessen the bulk of the bladder ; where this cannot be readily effected by means of the catheter, the trochar must be used, and every care must

be taken to prevent the rectum from being loaded with fæces, which may be most readily done by frequent clysters ; in some cases, where the symptoms are very alarming, it becomes necessary to tap the uterus itself, which, although abortion should uniformly ensue, is far preferable to risking the probability of a fatal issue, to which both mother and child are unavoidably exposed.

After labour, and before the uterus regains its usual tension and firmness, it is subject to antiversion, retroflexion, and prolapsus ; but of these I shall say nothing, as their symptoms and method of cure are precisely similar to retroversion.

By a law of the animal economy, hitherto unexplained, (and which want of time prevents me, at present, from attempting to elucidate,) the gravid uterus at the end of nine calendar months begins to contract for the purpose of dislodging its contents.

This contraction, though frequently irregular, generally begins at the fundus, and is attended with considerable pain. At length the os uteri dilating, permits the membranes filled with water, to protrude ; these being ruptured, and the water discharged, the uterus is suddenly diminished in size, in consequence of which the

os tinæ is brought nearer to the vulna, thereby allowing a greater distention of the vagina ; the action of the uterus, suspended for awhile by the discharge of the waters, soon returns, the child is speedily expelled, the placenta soon follows, and finally, at the end of a few weeks, the uterus regains its usual shape and firmness.

As there are two instances on record where two wombs existed in the same woman, the one by De Graaf, and the other by Blackall, I am unwilling to pass them by in silence, especially that one mentioned by De Graaf, as I believe it strongly supports my theory of conception ; there evidently appearing to have been no communication between the uterus that was lastly impregnated and the vagina, and, consequently, no way in which the ovarium on that side could become impregnated but through the medium of the absorbents ; the case is related as follows :—

Duas matrices, 6 Januar. 1659, a Bened. Vassalio Chirurgo, corpus mulieris 32 annorum ætatis, sanguinei temperamenti, et masculini aspectus aperienti, repertas ostendit.

Hæ duæ matrices tam egregie diligenti naturæ cura dispositæ erant, ut, quæ vera erat, undecies conceperit, nempe 7 masculos et 4 fœminas, omnes justo tempore natos et ad amussim

efformatos. Illos vero demum secutus est frater, tantum fœtus, qui in adjuncto utero conceptus est, in loco extensionis adeo impatienti, ut cum ampliorem locum quæreret, postquam matri post duos menses et semis gravissima symptomata effecerit, demum circa 3 vel 4 mensium ætatem repagula solvit, et suum in matris tumulo reperit, vasta sanguinis effusione in tota abdominis capacitate effecta, quæ matrem in tam violentos motus convulsivos totum triduum conijcet ut eis diem supremum obierit. Quo dictus Vassalius posteaquam (partibus balsamo servatus) particularem ejus dissectionem per integrum mensem, in suo domo, coram doctissimis Medicis, Chirurgis, Pharmacopolis, Obstetricibus, aliisque naturæ scrutatoribus qui Parisiis sunt, &c.*

* History of two wombs, discovered by Benedict Vassalius, surgeon, on the 6th of January, 1669, in the body of a woman thirty-two years of age, of a sanguine temperament, and of an open masculine countenance. On being opened the following appearances presented themselves :

These two wombs were so admirably placed by the care of attentive Nature, that the one which was the true womb conceived eleven times, seven of these conceptions being males, and four females ; all of them were born at the full time, and were well formed.

At length the brother (still in embryo) who followed these, and who was conceived in the adjoining womb, became so impatient of his place of confinement, that he sought an ampler field ; for two and a half months he produced the most distressing symptoms to his mother, until, at length, about the third or fourth month, he burst his bonds, and found himself in her abdomen. The effect of this was

Menstruation.

[I know there are readers in the world, as well as many who are no readers at all, who find themselves ill at ease, unless they are let into the whole secret, from first to last, of every thing which concerns you. It is in pure compliance with this humour of theirs, and from a backwardness in my nature to disappoint any one soul living, that I shall be so very particular. As my opinions are like to be no less read than the Pilgrim's Progress itself; and, in the end, prove the very thing which Montaigne dreaded his essays should turn out, that is, a book for a *bedroom* window; I find it necessary to consult every one a little in his turn; and, therefore, must beg pardon for going on in my own way: for which cause, right glad I am that I have begun the history of *menstruation* in the way I have done: and that I am able to go on, tracing every thing in it, as Horace says, *ab ovo*.—*Rev. Laurence Sterne.*]

As connected with the uterus, I think it proper to give some account of that sanguineous, and, usually, monthly discharge from it, known by the appellation of *Menses, Menstrua, Catamenia*, &c. The time of life when this first makes its appearance, though generally about the fourteenth year, is very variable, it being frequently controlled by climate, habits of life, temperament of body, and by general as well as

an effusion of blood filling the whole cavity of the abdomen, which threw the mother in such violent convulsions for the space of three days, that on the last of them she died.

Afterwards (the parts being preserved in balsam) Vassalius examined them for a whole month, in his own house, before the most learned physicians, surgeons, pharmacopolists, midwives, and other examiners of nature who were in Paris.

local excitement. The duration of the hæmorrhage, in a healthy active woman, is from three to five days, and the quantity seldom exceeds five or six ounces; while in those of more delicate frames and laxer fibres, whose habits of living are more luxurious and sedentary, the discharge becomes so great and long continued, or irregular, and frequently recurring, as to prove most injurious to the health, and an insuperable impediment to conception.

With many women the catamenia occur twice a month, and with others every third week, but so long as these return at regular periods, the frequency of their recurrence may be considered as natural, as it is never known, provided they are otherwise in good health, to have the least influence on their fecundity.

The appearance of the menstrua is said first to indicate the fitness of the female organs for conception and gestation; while their cessation, which generally takes place about the forty-fifth year, regularly marks the final period when the uterus is no longer capable of performing those functions imposed upon it by nature.

Although the menses usually commence in the 14th year, and end in the 45th, we have several accounts of notable exceptions to this rule; one of which may be found in the history

of the Academy of Sciences, for the year 1708, page 63, in which we are told of a girl who menstruated on the 8th day after her birth, and that when four years old she was three and a half feet high, justly proportioned, and as well fitted for the purposes of marriage as females usually are at the age of eighteen. In the same work it is mentioned that the women of the East Indies frequently have children when only nine years old, and a case is cited where the catamenia continued until the age of 106. Daniel Petronius, (of Genoa,) in an epistle to Thomas Bartholine, declares that he saw a woman of four score years, who had menstruated, for the two years preceding, regularly and easily, without the least inconvenience to her health.

Linnæus, writing on this subject, observes that the women in Lapland menstruate very sparingly; some but once a year, some during summer only, some never in their lives, although they had been long married; the last of these, he states, are universally barren, as well also as that all of them are afflicted with œdematous swellings in their feet.

In confirmation of these remarkable facts, Van Swieten assures us that he saw a child only a month old who menstruated, and who, at the age of seven years, had all the signs of maturity,

was married at nineteen, and bore many healthy children.

I cannot close this account of these curious aberrations of nature, without mentioning some cases (in opposition to *Linnaeus* and our everyday observations) where women, who during their lives had never menstruated, were healthy and fruitful. Thus, *Fernelius** states that a woman lived to the age of sixty in very good health, without any appearance of the menstrea. *Hildanus*† mentions a woman who, at the age of forty, had seven children, and was in good health, although she had never menstruated during virginity or the married state.

Travellers‡ speak of “a country among the Tapuyas, in Brazil, where the whole race of females never, in all their lives, have any appearance of these discharges.” If this be acknowledged as a fact, it completely overthrows the analogy, supposed by *Dr. Denman* to exist, between the ripening of fruits and flowing of the menses, as equally dependent on heat of climate; we allow, that amidst the eternal snows of *Lapland*, women menstruate very sparingly, but cannot credit the assertion that this arises solely

* *Pathol. lib. vi. cap. 16. parte ii. p. 197.*

† *Oper. omn. obser. cent. v. p. 428.*

‡ *Gault. Charletoni de Causes Catemen. cap. 4. p. 39.*

from the coldness of the climate; otherwise the women of the Tapuyas, who are children of the sun, whose features are imprinted with the ever-durable tinge of his paternal warmth, and who dwell in the meridian splendour of his presence, would never have been cursed with those thousand racking pains which attend amenorrhœa, and which are thus made for ever dependent on the absence of his all vivifying rays.

Menstruation is generally preceded and accompanied by an irregular pulse, pains in the back, loins, and thighs, nervous and hysteric affections, complaints of the viscera, and a depravation of almost all the vital and animal functions. As the menstrua cease, these symptoms gradually disappear, but frequently through life return with equal violence at every period of menstruation.

The time of life when the menses cease is always influenced by the later or earlier period of their commencement; thus, women who menstruate at ten or eleven years of age, (as is common in the East Indies,) seldom continue to do so after thirty-five; while those whose first time of menstruation is protracted to the seventeenth or eighteenth year of age, frequently possess this function of the uterus until the sixtieth year of their lives.

The difference in the time of life when the menses appear, has been assigned as the reason why women, in hot climates, are almost universally treated as slaves, and why their influence is so powerful and extensive in cold countries, where personal beauty is in less estimation. In hot climates women are in the prime of their beauty when they are children in understanding; and when their understanding is matured, they are no longer the objects of love. In temperate climates their person and their minds acquire perfection at the same time; and the united power of their beauty and faculties is irresistible.*

The duration of any one course of menstruation is so clearly governed by habit of body, manner of living, and temperature of climate, that its variations, from two or three hours to eight or ten days, excite no surprise. It is difficult, however, to account for the usually regular monthly recurrence of the catamenia.†

* David Hume; Dr. Denman.

† Si petat hic aliquis a qua causa fermentatio illa procedat? et cur semel tantum in mense menstruus sanguis excernatur, cum reliqua excrementa singulis expurgentur diebus? Respondebimus illa ad definitos naturæ motus, et certas illius leges nobis adhuc incognitas referenda; si enim quotidie expurgarentur menstua, nunqua aut admodum raro mulieres conciperent; neque hominum quicquam femine in amplexum iret, si ejus genitalia perpetuo cruore maderent.—Op. Omn. Reg. de Graaf, p. 262.

The influence of the moon, plethora of the body generally, or of the uterus alone, the specific action of the bile, and a ferment in the uterus, have all, at different times, been offered as the *efficient* cause. That the moon has no peculiar influence upon menstruation is evident from the fact that women menstruate every day through the whole course of its increase and decrease; that it arises from a fermentation in the womb, or from the specific action of the bile on the uterus, requires no refutation, as the idea is preposterous for the veriest tyro of the present day.

The gentlemen who support the opinion of its arising from a constitutional or local plethora, are so numerous and respectable, that it would be ungracious in me not to notice the several reasons which they have offered in support of their respective theories.

De Graaf* asserts, that on a suppression of the menses the blood flows readily from the eyes, nose, gums, breasts, navel, and various

* Non tamen hic vaginam sic excludendam volumus, ac si nunquam per illam prodirent menstrua, videmus enim, et clarissimorum virorum testimonia confirmant, illa per vomitum, alvum, urinam, per oculos, nares, aures, gingivas, mamas, umbilicum, minimum manus digitum, ac alias insuetas, corporis partes interdum promanare.—p. 259. Op. Omn.

other parts of the body: And again,* that he believed in a constitutional plethora, because he saw in women, while menstruating, that not the uterus alone was affected, but that the head likewise was afflicted with pains, that great weakness and weariness of the legs succeeded the shortest walk, that the stomach and other parts of the body were distressed with wandering pains, and that the blood attempted to get out at various other passages, as the nose, lungs, and other parts of the body previously mentioned, which, he says, could not take place independent of a general plethora.

Dr. Freind supposes a plethora to be gradually accumulating daily, and calculates exactly, as he believes, the quantity that is thus formed, day by day, to supply a sufficiency of menstrual blood (without injury to the body) for the support and nourishment of the foetus during gestation, and that the blood so necessary for this purpose is, in women not pregnant, daily aug-

* Neque existimamus fermentationem illam in uteri vasis tantum, sed in tota massa sanguinea contingere; quoniam videmus in mulieribus, quarum menstrua fluunt, non uterum solum offici, sed caput doloribus infici, pedes lassitudine detineri, ventriculum ac reliqua corporis membra his vel illis molestiis infestari; nec non sanguinem illum per nares, pulmones, ac alias jam dictas corporis partes subinde manare; quæ neutiquam evenirent, nisi integra sanguinis massa fermentationis motu exagitaretur.—p. 261. Op. Omn.

mented, until at the end of four weeks, the blood-vessels being overloaded, discharge themselves into the uterus; but if, from disease, their mouths, naturally patulous, become closed, then the superfluous blood seeks some other outlet.

That those who argue thus have been inattentive to many of the phenomena attendant upon this discharge is evident, when we consider that many of the following every-day facts tend to disprove the theory: according to them, the female body, on the first appearance of menstruation, should have arrived at its acme and full growth; whereas, the contrary to this is the case, for girls increase more rapidly in size immediately afterwards than at any former period, their lovely, life-sustaining breasts now, for the first time, swelling forth, and all the other marks of puberty now making their first appearance.*

If the menstrual discharge be dependent on this general plethora, the frequency of its recurrence would be influenced by the quantity of food used, or by any evacuations, or by fasting, or by abstemious diet, neither of which, we are assured, effects the least change; venesec-

* About the time of puberty, though in some later, there is frequently observed so sudden an increase of stature, that even in a few months the body shall grow taller than it had done for two years together before that.—Van Swiet. *Comm.* vol. 13. p. 207.

tion, for instance, during the interval of the regular discharges, will not impede their return. Nay, Hoffman affirms, "from repeated experience, that it is a common thing to see letting of blood, before the usual period, occasion a freer discharge of the menstrual flux." Again,

The blooming, rosy-faced country girl, accustomed to hoyden sports, and inured to pastoral labour, and whose blood, at the sun-set dance, runs riot in her veins, menstruates sparingly and with ease ; while the fashionable belle, whose fine blue veins are scarcely visible through the delicate texture of her alabaster skin—whose health is dissipated by the repeated midnight waltz ; and whose faded bloom and pallid cheek outvies the lily's whiteness, anticipates with horror the return of the catamenia, which frequently, by its excess and long continuance, proves fatal, by inducing consumption, hysteritis, and "the thousand ills that flesh is heir to."

Dr. Simpson, in support of his opinion, that the menses depend on a particular plethora of the uterus, maintains, "the gradual increase of the uterus at first to be the cause of the irruption of the menses ; for there was always a secretion of thin liquid within the cavity of the uterus, to moisten it, and keep the sides from growing together. Now, these minute exhaling

vessels, being at first very small, and being more and more dilated as the uterus grows, transmit, at last, the red globules of the blood : then begin the menses to flow, which may very well happen without a universal plethora of the whole body. But as the blood has now a freer passage through these dilated orifices, the resistance of the blood, propelled through the uterine vessels, is taken off ; consequently the dilating cause ceases."

Dr. Denman, thinking it impossible to account for the absence of coagula, in menstrual blood, by the theory of a plethora, general or local, deems the menstrua to be a secretion of the uterus, made in a manner similar to that by other glands of the body, and not coagulable, because essentially different from blood.

Of these several opinions of the efficient cause of the menstrual flux, I think Dr. Simpson's most consonant to reason, and best able to account for the various phenomena attendant upon its appearance. I cannot, however, believe that a plethora, or unnatural plenitude of the uterus, ever takes place in a healthy female ; all the phenomena are as comprehensible, and as easily to be explained, upon the principle of a natural fulness consequent upon maturity, as upon his theory of a uterine plethora.

The uterus, during the time of its growth, by a power inherent in all animal bodies, assimilates the fluid that it receives from the vascular system with its own proper substance, until at length, arriving at its natural size, (occurring in different females at different periods of life, though mostly from the ninth to the eighteenth year,) it no longer requires all the blood that it had previously received for its growth and nourishment; these vessels, heretofore flexible and yielding, being now fully formed, and less elastic, react on the blood that formerly distended and supported them, in consequence of which, a small quantity of this now superfluous blood, thus impeded in its return, is, by the powerful action of the heart, forced into the uterus through the exhalent arteries, which are pervious from birth for the purpose of affording a lubricating fluid to moisten the uterus, and keep its sides from actual contact, lest, upon any slight inflammation, to which the delicate female frame is so very liable, an adhesion should follow, which inevitably would prevent the accomplishment of that great commandment, "increase and multiply."

This bloody discharge from the exhalents generally continues three or four days, when the reacting power, which, like Fame, "vires

crescit eundo," closes the small extreme arteries, and causes a cessation of the hæmorrhage.

This *vis incita*, or reacting principle, being once excited, maintains its power for an indefinite period of time, for two, for three, or what is most common, for four weeks, according to the constitutional formation of the female, until at length, exhausted by long-continued action, it yields to the *vis a tergo*, i. e., the blood impelled by the incessant and forcible action of the heart and arteries, which causes the hæmorrhage to return again, and the same phenomena to occur in a continued circle, until age or disease so impair the uterine system as to render it incapable of performing its natural functions.

It may not be amiss, before entering upon the subject of the final causes of menstruation, to say something of the very prevalent opinion, "that the menstruous blood possesses peculiar malignant properties." This idea, so long ago discredited by the learned, as to have been confuted by Hippocrates* and Aristotle,† I am

* *Illum (qualitas sanguinis) in sanis mulieribus velut a victima procedere, et cito congelari.*

† *Quæ menstrua vocantur erumpunt, quod sanguis quasi recens occisi animalis est. Horum gravissimorum virorum auctoritatibus non minus quam rationibus jam allegatis constat sanguinem menstruum ex natura sua benignum humorum esse; qui tamen, ut modo dictum est, aliquando ita immutatur, ut, propter pituitosi aut serosi humoris copiam ipsi permixtam, album aut serosum menstruum profluvium inducat;*

sorry to find still holds its ground, in despite of the shafts of ridicule and the deductions of reason.

The first we hear of this is from Moses, the Jewish legislator, who, in the 15th chapter of Leviticus, has enacted several laws relative to menstruous women; and the great contempt in which every thing contaminated by the menstrua was held, is strongly expressed in Isaiah, chap. 30. ver. 22. From this source, it is probable, that the Arabian physicians, who entertain the same notion, adopted their ideas; indeed, in all the Eastern countries, the menses are looked upon as having some impurity and even contagion in them, wherefore the Mosaic laws lay them under the same restriction with lepers.

Rhazes, surnamed experimentator, who practised in Persia in the 9th century, says that he saw an ulcer on the penis arising from the malignancy of the menses, and that too from a particular manner of coition, the *ascentio mulieris supra virum*.

A thousand other tales, equally ridiculous and inconsistent, might be related, but as they have all

quod periodicum quandoque fluendi modum retinet, non nunquam vero continuum evadit; unde misera mulier tristis, onerosa, pusillanimis segnis, imbecillis, atque consumpta, nec non sæpe sterilis redditur. *De Graaf*, p. 264.

had their day, and are now buried in Lethe's dark oblivious wave, it is scarcely worth while to drag them forth to upper air ; I cannot, however, pass over in silence the assertion of Columella, who wrote in the time of Claudius, viz : " That it is the very last, and when all others have failed, the most efficacious remedy to destroy the caterpillar, so pernicious to gardens, if a woman in her menses, with her bosom uncovered, her hair dishevelled, and bare footed, shall walk three times round all the garden hedge and every bed ; for then

Mirabile visu,

Non aliter quam, decussa pluit arbore nimbus,
Aut teretis mali, vel tectæ corticæ glandis,
Volvitur ad terram, distorto corpore campe.

Strange to see,

As pippins or as acorns from the tree,
When struck with hail, or sudden showers of rain,
From off the boughs are strew'd along the plain,
So strew'd along the ground the vermin lie,
Rolling with pain, and in distortion die."

But two opinions, I believe, have been entertained of the *final* cause of menstruation ; the one that it was necessary to prepare the uterus for conception, and the other, that during pregnancy it served the purpose of sustaining the fœtus : the correctness of these two opinions is acknowledged by most of the profession ; I shall

not, therefore, recite the various arguments that might be adduced in their support, lest I should exceed the proper limits of my thesis.

To the two foregoing *final* causes, I must add a third, which is, that upon menstruation depends the venereal appetite.

So intimate a connexion, for ages past, has been known to exist between the first appearance of the menses and salacity, that many have supposed the reverse of my opinion, viz. that the menstrea was caused by, and dependent upon, lechery ; in support of which idea but one reason is offered, and that founded upon the analogy supposed to exist between the plethoric uterus and the turgid penis of the male during its erection ; did that intimate union of the corpora of the penis with the testes of the male take place, which we find to exist between the uterus and ovaria of the female, or did the penis for the first time become erect when the testicles had secreted semen, or did it afterwards extend its turgidity in proportion to the semen secreted, and not alas ! too often, either through fear, anxiety, excessive cold, immoderate heat, or clownish shame, peremptorily refuse with erected crest to relieve the overated testes, we might venture to believe, though unable to support the opinion, that the turgidity of the penis was

dependent upon the venereal orgasm, which now, in this sceptical and matter-of-fact age, no man who has cut his dentes sapientiæ will venture to credit.

Let us now examine the reverse of this picture: like many of my brother practitioners and youthful competitors in science, it has frequently been my lot to be called in to attend upon some of those "*fashionable impures*," whose errant passions had rendered them humble devotees to the shrine of Venus, and whose follies and vices had now prostrated them before that of Mercury; to these women, whose secrets are open to all, I first addressed my inquiries as to the circumstances which preceded and attended the evolution of the venereal appetite; many of these unfortunate beings had been estranged from the love of an affectionate father and doting mother, by the frail vows and splendid offerings of that greatest curse to human society, the seducer, long ere they were taught by the impetus of nature to ascertain the cause of their wandering, or to sympathize in the brutal lust of the violator; these women, no longer shackled in the trammels of modesty, and, in this instance, having no object to allure them from the plain path of truth, have invariably assured me, that although long previous to menstruation they had practised

their professional "calling," yet, until immediately after that period, they had never known any pleasure to arise from sexual intercourse. This fact, since confirmed by the highest and most respectable authority, which *must not* here be adduced, has convinced me that the sexual appetite in women, originally bestowed upon them for the purposes of propagation, is made dependent upon menstruation.

It would be the height of folly to believe, that of all the passions that actuate the human breast, this alone was given without some final object adequate to its universality and power; this object is the propagation of our race, and that we should not slacken in our duty, the Grand Architect of the universe has combined with it some of the greatest pleasures of which the animal body is susceptible, and fixed its sure foundation on the first appearance of the menses, as after this period only are the objects for which it was bestowed capable of being effected.

These facts, though allowed, still remain to be elucidated; but how? I would answer, by anatomical investigation. The ovarium, attached to the ligamenta lata, and floating on either side the uterus, loosely in the pelvis, is supplied with blood by the spermatic artery; this artery, however, in lieu of passing directly to the ovari-

um, winds its tortuous folds through the fundus of the uterus, to which it distributes most of its blood, anatomising freely with its fellow, as well, also, as with the branches of the hypogastric artery, and then sends off a diminutive branch to the support of the ovarium. From this distribution, it would appear that the ovaria during the first several years of life receive too scanty a portion of blood to enable them to fulfil their glandular offices, until at length the uterus being fully formed, and its vessels of course becoming harder and less distensible, gives a greater resistance to the column of blood through it; in consequence of which a part of the superfluous blood is forced into the womb through the mouths of the exhalent arteries, forming the menses; while the residue of it, checked in its passage through the exhalents, in the manner before explained, is thrown by a branch of the spermatic artery upon the ovaria, which, by the genial influence of the blood upon them, are now soon matured and rendered highly sensitive to the touch of the fimbriæ. The fimbriæ, (being easily set in motion by the power of the imagination, or by local or general excitement,) crawling over the ovarium, readily impart the sensation that we term desire; this, being once roused into action, must continue, independent

of the uterus, so long as the sensibility of the ovarium remains unimpaired by disease.

To account for this new sensibility of the ovaria, to the action of the fimbriæ upon them, may be done by considering the greater quantity of blood which has been thrown upon them (in the manner before related) after menstruation, in consequence of which new particles are added, and new sensations excited.

This augmented influx of blood upon them naturally produces a state of irritability, upon an extension of which we acknowledge sensibility to be founded ; thus the excitement of this sensibility, caused by the action of the fimbriæ upon the ovaria, gives rise to that undefinable sensation in woman, which we term desire, or the venereal appetite.*

* With every new change of organic form, or addition of organic parts, I suppose a new kind of irritability, or of sensibility, to be produced ; such varieties of irritability, or of sensibility, exist in our adult states, in the glands ; every one of which is furnished with an irritability, or a taste, or appetency, and a consequent mode of action peculiar to itself.—*Darwin. Zoonomia.*

Conception.

[The Homunculus, sir, in however low and ludicrous a light he may appear, in this age of levity, to the eye of folly or prejudice ;—to the eye of reason, in scientific research, he stands confessed—a *being* guarded and circumscribed with rights. The minutest philosophers, who, by the by, have the most enlarged understandings, (their souls being inversely as their inquiries,) show us, incontestibly, that the Homunculus is created by the same hand—engendered in the same course of nature—endowed with the same locomotive powers and faculties with us :—that he consists, as we do, of skin, hair, flesh, veins, arteries, ligaments, nerves, cartilages, bones, marrow, brains, glands, genitals, humours, and articulations ; is a being of as much activity—and, in all senses of the word, as much and as truly our fellow creature as my Lord Chancellor of England. He may be benefited—he may be injured—he may obtain redress ; in a word, he has all the claims and rights of humanity, which Tully, Puffendorf, or the best ethic writers, allow to arise out of that state and relation.—*Rev. Mr. Sterne.*]

There is not, perhaps, any subject in Medicine so little understood, so much disputed, and possessing so many able advocates of different opinions, as this one.

Aristotle and Galen assert, that the male alone possesses semen, which is received in utero during coition ; and Hamme and Leeuwenhock say they saw living animals in semine masculino, and that the uterus served only as a proper place of lodgement for them ; while the illustrious Harvey believes the rudiments of the foetus to be contained in the mother alone, and that the ute-

rus conceives in like manner as iron partakes of magnetism by friction with a magnetic body.

Hippocrates and Empedocles assert, that an *evacuatio communis seminis* takes place during coition : Hippocrates supposes the child's temper to differ as either the male or female semen preponderates. My old chum and amusing companion, Laurence Sterne, expressed the same opinion when he said——but you shall have it in his own words—

“ I wish either my father or my mother, or indeed both of them, as they were in duty both equally bound to it, had minded what they were about when they begot me ; had they duly considered how much depended upon what they were then doing ; that not only the production of a rational being was concerned in it, but that, possibly, the happy formation and temperature of his body, perhaps his genius, and the very cast of his mind ; and, for ought they knew to the contrary, even the fortunes of his whole house, might take their turn from the humours and dispositions which were then uppermost.—You have all, I dare say, heard of the animal spirits, as how they are transfused from father to son, &c. &c.—and a great deal to that purpose :—Well, you may take my word, that nine parts in ten of a man's sense, or his nonsense ;

his successes and miscarriages in this world, depend upon their motions and activity, and the different tracts and trains you put them into. Pray, my dear, quoth my mother, have you not forgot to wind up the clock?——Good G—! cried my father, [making an exclamation, but taking care to moderate his voice at the same time,] did ever woman, since the creation of the world, interrupt a man with such a silly question?"

Baudelocque is of opinion, that a union of the semen masculinum with the semen foemineum is necessary to generation.* Cooper thinks the semen is taken into the general circulation by the absorbents.

Cheselden and Cruikshank say it is carried through the fallopian tubes to the uterus; the former says that he dissected a woman who died in coition, and discovered semen in the uterus and fallopian tubes; and the latter, that he examined a rabbit after coition, which had one of the fallopian tubes closed, and found there were no young ones in the ovarium of that side, although there were on the other side, the fallopian tube of which was open.

* L'union des principes fournis a la generation par l'un et l'autre sexe, et se nomme conception.—*Baud. de la Conception.*

Pythagoras supposed that from the brain and nerves of the male a moist vapour descended in the act of coition, from which similar parts of the embryo were formed; these were thought to be the seat of the soul, and, of course, the parts from which all the senses were derived; all the grosser parts, he imagined, were composed of the blood and humours contained in the uterus: he said that the embryo was formed in forty days, but that seven, nine, or ten months were required for the perfection of the fœtus, according to the *laws of harmony*.

Empedocles, who thought both male and female to possess semen, believed that the desire of procreation originated in the natural tendency of separated parts to be united.

Bonnet and Haller suppose the animal formed *ab origine*, and, with the authority of Harvey, think the semen masculinum to be the principle of animation and chief support of the fœtus.

Dr. Highton supposes the semen only to affect the vagina and uterus, and that a consent of parts, or sympathy, is communicated along the tubes and ovary to the ovum, and that neither the semen nor the *aura seminalis* reaches the ovaria. When we look abroad for analogies, however, and find the semen of some animals, as fishes, merely thrown out upon the already

evacuated spawn, we cannot readily acquiesce in this opinion of the mere sympathy of the female parts calling the young animal into life.*

Some have supposed the ovum, while enclosed in the ovarium, to be impregnated by an aura, exhaled from the semen masculinum, which contained the principles of life, and of which aura the semen was merely the vehicle.

The chemists have asserted that the male semen was of an acid and the female of an alkaline quality, the mixture of which produced an effervescence, on the conclusion of which, the particles precipitated were said to constitute the embryo, and the fluid remaining the waters of the ovum: others of them have said that the male semen possessed the properties of milk, and the female those of runnet, by which it was coagulated, the curd forming the foetus and the whey the waters of the ovum.

Many ingenious philosophers have supposed all the numerous progeny to have existed in miniature in the animal originally created; and that these infinitely minute forms are only evolved, or distended, as the embryo increases in the womb. As these included embryos are supposed each of them to consist of various and complicate

* C. Bell.

parts of animal bodies, they must possess a much greater degree of minuteness than that which was ascribed to the devils that tempted St. Anthony; of whom twenty thousand were said to have been able to dance a saraband on the point of the finest needle without incommoding each other.

Darwin believes that the embryo, as secreted from the blood of the male, at the first period of its existence, consists of a *living filament*, with certain capabilities of irritation, sensation, volition, and association, and also with some acquired habits or properties peculiar to the parent; the former of these are common with other animals; the latter seem to produce or distinguish the kind of animal, whether man or quadruped, with the similarity of feature or form to the parent. This periordium, or living muscular fibre, he supposes to be the *extremity of a nerve of locomotion*, capable of being excited into motion by the action of certain stimuli, such as the surrounding fluid in which it is received from the male; and that the female supplies nothing but the *resting place, sustenance, and oxygen*.*

* It appears to me that Mr. Walter Scott had this idea of Darwin in his mind when he wrote the following lines:

—————"What dost thou require?"—
 "Rest and a guide, and food and fire."

Lady of the Lake.

To account for distinctions of the sexes, he says that many glands have their motions and secreted fluids, affected by pleasurable or painful sensations, and are influenced by *sensitive associations*; thus sensations of pleasure or pain excite a discharge of tears; and he mentions the paleness of fear, and the blush of shame, or of joy, as instances of the effects of painful or pleasurable sensations on the extremities of the arterial system.

Thus it seems that “our ideas, being movements of the nerves of sense,” so act upon the extremities of the arteries, forming glands, as to form by this power of imagination, or association of ideas, productions resembling the cause from whence they originated.*

As to the power of the *mother's* imagination, (so well known to Jacob, who stripped the bark off the trees that his ewes might have spotted lambs, Genesis, chap. 30. ver. 40.,) he thinks it cannot produce any alteration in the foetus, except by affecting the nutriment laid up for its first reception, or the nourishment or oxygen with which it supplies it afterwards. It is by the power of the *father's* imagination that the pro-

* There is such a reciprocal connexion and consent between the particular thoughts and affections of the mind and the body, that a change in the one will always produce a change in the other.—*Boerhaave.*

pensities or appetencies of the living filament is altered at the time of its production ; the extremities of the seminal glands imitating the motions of the organs of sense ; and thus the sex of the embryo is produced ; which may be thus made a male or female by affecting the imagination of the father at the time of impregnation.

To answer the question, why does the fœtus, if the embryo is formed in the male, resemble the mother ? he answers, that “ these ultimate particles of animal matter, prepared by the mother, may be supposed to resemble the similar ultimate particles which were prepared for her own nourishment ; that is to the ultimate particles of which her own organization consists ; and that hence, when these become combined with a new embryo, which, in its new state, is not furnished with a stomach, or glands, to alter them, that new embryo will bear some resemblance to the mother.”

He further adds, “ that I have known two families, in which, on account of an entailed estate in expectation, a male heir was most eagerly desired by the father ; and, on the contrary, girls were produced to the seventh in one, and to the ninth in another ; and then they had each of them a son. I conclude, that the great desire

of a male heir by the father, produced rather a disagreeable than an agreeable sensation ; and that his ideas dwelt more on the fear of generating a female, than on the pleasurable sensations or ideas of his own male form, or organs, at the time of copulation, or of the secretion of the semen ; and that hence the idea of the female character was more present to his mind than that of the male one ; till at length, in despair of generating a male, these ideas ceased, and those of the male character presided at the genial hour.”

In his appendix to the 39th section, 3d London edition, he has modified his theory as to “suppose that no organized particles are secreted either by the glands of the male or female ; but that the fibrils, with formative appetencies, are secreted by the glands of the male, and the molecules, with formative aptitudes or propensities, are secreted by those of the female ; and that, *when these combine, the organization commences.*

I have been thus particular in the delineation of Dr. Darwin's opinions of generation, not so much to show the solidity of their basis, as to exhibit, in part, that brilliancy of imagination with which he has erected and supported them.

From such a variety of opinions, and each one so well authenticated, it seems almost impos-

sible but that one may be chosen faultless ; yet this I believe is not the case. If we accede to the opinion of Hamme, Lewenhoeck, Galen, Aristotle, Cheselden, and Cooper, the foetus should always resemble the male. If we yield to Harvey and others, the foetus must always resemble the female ; both of which cases are disproved by the existence of mulats, mules, and hybrids. If we coincide with Hippocrates, Empedocles, and others, in an *evacuatio communis seminis*, we are disproved by every day's experience, no such discharge ever being discernible upon the closest inspection.

○ If we agree with Buffon, that organic particles exist in the blood of both males and females, which organic particles only require rest in order to expand themselves into embryos ; why do we not meet with them in various glands, aneurisms, and indolent tumours, where the circulation through the vessels is not only very slow, but often definitively impeded ?

From this wilderness of doubt and conjecture, where theory on theory, Ossa on Pelion, overwhelms the judgment, and makes confusion worse confounded, I know of but one method of extricating ourselves ; which is by acknowledging the glandular structure and office of the ovaria ; not that I would be understood to as-

sert that a quantity of semen is thrown out during coition, or that salacity is founded upon the quality of the secretion ; no, this I have already explained ; but that these bodies have the power of secreting, and sometimes of organizing, parts and rudiments of an embryo, without any reciprocal seminal commixture ; that this opinion, though almost obsolete, is not idle and fallacious, may be proved from a number of facts. One, however, from the learned and ingenious Mr. John Burns, must (for want of time) suffice, “The ovarium was once supposed to secrete a female semen, and was, therefore, called the testicle of the woman ; this is now disproved ; but still there can be but little doubt that it deserves to be considered as a gland. Some, perhaps, may cavil, when I say, *that it is here that the rudiments of the fœtus are secreted* ; but the cavil can only be at the use of the word. The male semen is the natural stimulus to this gland, which excites it to action ; but other stimuli will induce an imperfect action, similar to that of generation. It is, for instance, a fact that confused masses, consisting of flesh, bones, and hair, have been found in the ovaria of women who had all the signs of virginity.”*

* The resemblance of the offspring to both parents, would influence us at once to conclude that there must be a union of the parts from both sexes.—*C. Bell on the Womb.*

This opinion is, also, supported by analogy : hens, for instance, lay eggs without having had any connexion with a cock, and although these eggs will not produce chickens, they are apparently as perfectly formed as those which have been laid after copulation ; the assertion of Dr. Darwin, that the cicatrix is wanting in the former, having lately been disproved by minuter examinations.

There appears to me to be a great affinity between eggs produced in this manner and moles,* or false conceptions, both possessing the female proportion of animal secretion, though entirely devoid of the *vis vitæ* which it can only receive from the semen masculinum.

To the union of the semen masculinum with this female secretion of the ovaria, can we only, in my opinion, look for that resemblance which children usually bear to both father and mother.

Nor is it more difficult to conceive that the fiat of the *Almighty* has bestowed this peculiar function upon the ovaria, than that powers equally differing from each other should be given to the liver, lachrymal gland, &c.

* Pliny, book 10, chapter 64, in his Natural History, mentions female productions of this nature, as does Shakspeare, in the "Tempest," under the title of "Moon Calf." A Moon Calf is an inanimate, shapeless mass, engendered of woman only.—*Stevens' Notes on Shakspeare.*

This secretion by the ovaria, which is deposited in various receptacles or *puncta alba* of the gland, (though capable at times of being excited into *action* by other stimuli, as in the case related by Mr. Burns,) possesses a remarkable appetency for, and attraction to, the male semen, which, alone, by its inherent virtues, is capable, on the instant, of arousing it into *action* and *life*.

These reservoirs, by a wise provision of nature, being filled, one after another, the fluid secreted in one or more of them becomes vivified by the contact of the male semen; in consequence of which, the germ, (now changed to a living embryo,) by its sudden evolution, causes an immediate irritation and enlargement of the gland, whereby its proper coat is ruptured, and the embryo thrown within the grasp of the fimbriæ.

Was it a fact that the ovarium was what its name indicates, how does it happen that only a *few* of the ova are impregnated, when the whole of the ovarium is so highly and equally inflamed by the apposition of the semen masculinum?

As well for the purpose of confirming my opinion of the cause of female desire and connubial pleasure, (dependent upon the action of the fimbriæ upon the sensitive ovarium,) as of proving

the general inflammation of the ovaria consequent upon impregnation, I shall transcribe the description of an experiment made by Professor Mitchill, of this university, which I had the pleasure of receiving from that gentleman in a note dated April 14th, 1816.

“A large sow was killed immediately after sexual intercourse with a boar. On examining the genital organs, the blood vessels of the vagina, uterus, fallopian tubes, and fimbriæ were unusually distended with blood; and the fimbriæ, in particular, were in a state of high redness and apparent inflammation. Their fibres were lengthened so far on one side as to *embrace the whole ovarium, and to contain it within their grasp*. On removing the surrounding fimbriæ, and bringing the ovarium to view, I observed the *whole body of it tinged with blood*, as if it had undergone violent action of the vessels. The ova partook of this distention. The sow had borne pigs before; some of the ova were, of course, exhausted of their powers, and were in the condition usually observed in such cases; in these, very little alteration was perceptible; but in the ova which had not been previously impregnated, there were various indications of stimulant action: some of them were moderately swelled; others were enlarged to the point of bursting

their membrane ; certain of them were actually ruptured, and their contents, resembling coagulated blood, partly protruded. In several, the grumous mass discharged from the broken ovum was fairly within the enclosure of the fimbriæ. But I discovered no other trace of an embryo ; all that I could detect resembled, almost exactly, clotted blood. From these organic masses the fœtus, probably, derived its rudiments and beginnings.”

The place where, and the manner how, the apposition of the semen masculinum to the maternal rudiments of the fœtus takes place, has been the source of much disputation. Many suppose the semen of the male to be carried to the ovaria by the fallopian tubes, while as many others assert that it can only be carried there by the absorbents.

The instance quoted from Mr. Cruikshank, in support of his theory, that the fallopian tubes performed this office, carries no conviction to my mind, as it is natural to suppose that the same disease which affected the fallopian tube destroyed the power of the ovarium ; and I am inclined to believe what Cheselden mistook for semen in the uterus and fallopian tubes, was no other than that mucus which, to a greater or less extent, sheathes the surfaces of all cavities.

It is undeniable that absorbents arise from all the surfaces of the human body ; and I am inclined to think that those arising from the vagina, in their course towards entering the circulation, (for a conveyance of which the ligamenta lata appear every way formed,) pass over the ovaria, and give off the grand desideratum, or vivifying principle, to the maternal rudiments of the foetus, contained in the puncta alba, whence emanates the punctum saliens, or embryo, which is carried by the fallopian tubes to the uterus for protection and nourishment.

As a further reason for my opposition to the common theory that the uterus receives the semen masculinum during coitus, I will add, that at this time the parts are excessively irritated, and that it would be extremely irrational to suppose any relaxation of the circular fibres of the os uteri whilst thus irritated.

What induces me to adopt the foregoing opinion is, the apparent improbability that a part of so much importance to the system as the fallopian tubes, should possess two acting powers in diametrical opposition to each other ; which they evidently do, if we allow them to be capable of conveying the semen from the uterus to the ovaria, and the ovum from the ovaria to the

uterus : besides, it is on the principle of absorption only that we can account for an extra-uterine foetus ; for if the fallopian tubes were so much obstructed as to impede the passage of the punctum saliens through them to the uterus, they must have been sufficiently so to obstruct the passage of the semen from the uterus to the ovaria, and, of course, impregnation would never take place when an extra-uterine foetus would be the consequence.

VALE ! VALE !
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